



Forum HH – mardi 13.11.2018

Environnement et risque infectieux

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Facteurs influençant le risque infectieux

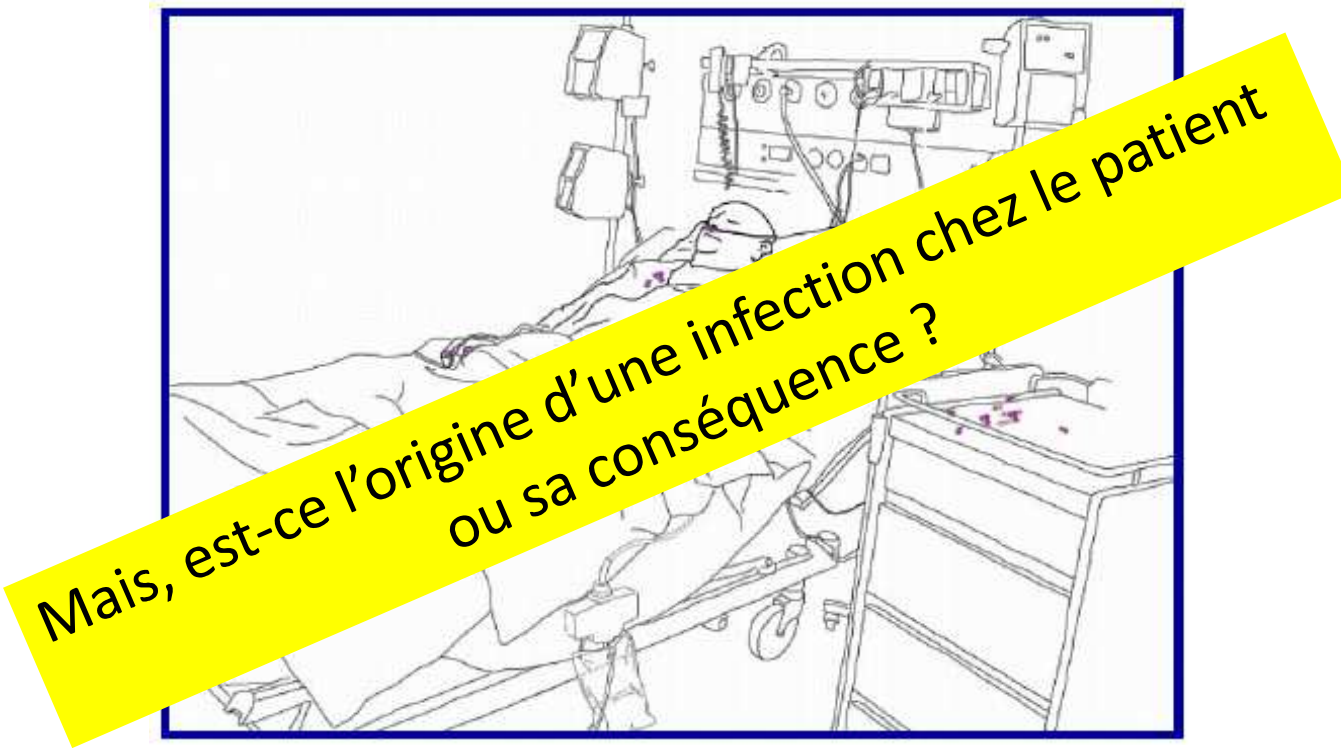
- Les caractéristiques du patient
 - pathologie
 - traitements
- Les procédures de soins
 - ... dont le respect des mesures d'hygiène
- L'environnement de soin

Pourquoi un forum dédié à l'environnement ?

- Quelle est la place de l'environnement dans l'origine des infections associées aux soins ?
- ... et (comment) peut-on prévenir ces infections par une action sur l'environnement ?
- Quels sont les contrôles environnementaux utiles / nécessaires ?

L'environnement est-il contaminé ?

L'environnement est contaminé




Pittet D *et al.* *Lancet ID* 2006;6(10):641-52.

Le rôle des siphons dans les infections

De Geyter et al. *Antimicrobial Resistance and Infection Control* (2017) 6:24
DOI 10.1186/s13756-017-0182-3

Antimicrobial Resistance
and Infection Control

RESEARCH Open Access

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The sink as a potential source of transmission of carbapenemase-producing *Enterobacteriaceae* in the intensive care unit

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Abstract

Background: Carbapenemase-producing *Enterobacteriaceae* (CPE) are emerging pathogens that represent a major public health threat. In the University Hospital of Brussels, the incidence of new patients with CPE rose from 1 case in 2010 to 35 cases in 2015. Between January and August 2015, five patients became infected/colonized with CPE during their stay in the same room in the intensive care unit (ICU). Since the time period between those patients was relatively short and the strains belonged to different species with different antibiograms and mechanisms of resistance, the hypothesis was that the environment could be a possible source of transmission.

Methods and results: Environmental samples suggested that a contaminated sink was the source of the outbreak. Besides other strains, *Citrobacter freundii* type OXA-48 was frequently isolated from patients and sinks. To investigate the phylogenetic relationship between those strains, pulsed-field gel electrophoresis was performed. The strains isolated from patients and the sink in the implicated room were highly related and pointed to sink-to-patient transmission. In total, 7 of 8 sinks in the isolation rooms of the ICU were found to be CPE contaminated. To control the outbreak the sinks and their plumbings were replaced by new ones with another structure, they were flushed every morning with a glucoprotamin solution and routines regarding sink practices were improved leading to discontinuation of the outbreak.

Conclusions: This outbreak highlights that hospital sink drains can accumulate strains with resistance genes and become a potential source of CPE.

Keywords: Carbapenemase-producing *Enterobacteriaceae*, Hospital sinks, Outbreak, Intensive care unit, *Citrobacter freundii* OXA-48, Transmission



Contaminated Handwashing Sinks as the Source of a Clonal Outbreak of KPC-2-Producing *Klebsiella oxytoca* on a Hematology Ward

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We investigated sinks as possible sources of a prolonged *Klebsiella pneumoniae* carbapenemase (KPC)-producing *Klebsiella oxytoca* outbreak. Seven carbapenem-resistant *K. oxytoca* isolates were identified in sink drains in 4 patient rooms and in the medication room. Investigations for resistance genes and genetic relatedness of patient and environmental isolates revealed that all the isolates harbored the *bla*_{KPC-2} and *bla*_{TEM-1} genes and were genetically indistinguishable. We describe here a clonal outbreak caused by KPC-2-producing *K. oxytoca*, and handwashing sinks were a possible reservoir.

J PREV MED HYG 2017; 58: E302-E307

ORIGINAL ARTICLE

VIM-*Klebsiella oxytoca* outbreak in a Neonatal Intensive Care Unit. This time it wasn't the drain

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Keywords

VIM-*Klebsiella oxytoca* • NICU • Sink (drain)

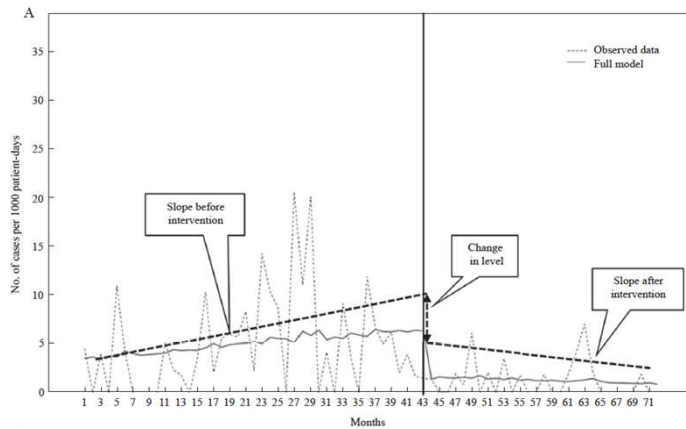
Les infections peuvent être liées à une source environnementale

- Légionellose nosocomiale et réseau d'eau chaude contaminé
 - Aspergillose invasive dans un secteur pour patients immunodéprimés et un contexte de travaux
- ➔ preuve de la causalité entre l'environnement et l'infection

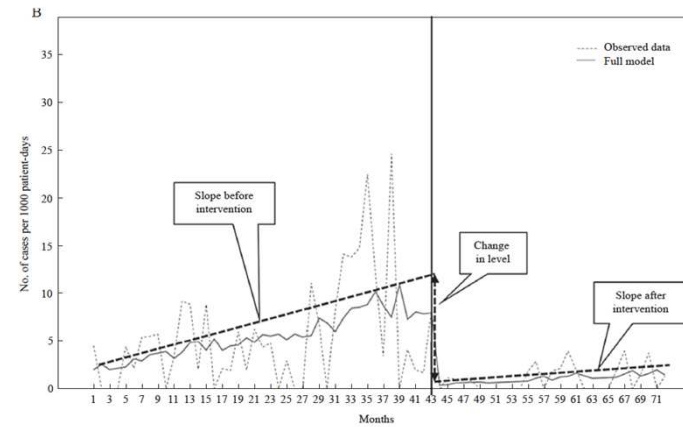
Une intervention sur l'environnement peut-elle
permettre de contrôler des infections ?

Impact de mesures sur le réseau d'eau et infections à *P. aeruginosa* ou *K. pneumoniae*

Intervention = suppression des points d'eau dans les chambres de SI



P. aeruginosa MDR



K. pneumoniae MDR

Les infections prévenues par des actions sur l'environnement

- Maîtrise des réseaux d'eau :
 - légionellose nosocomiale
 - infections à *Pseudomonas aeruginosa*
- Maîtrise de la qualité de l'air
 - aspergillose invasive dans un secteur pour patients immunodéprimés
 - pathologies à transmission aérienne : tuberculose, rougeole ...
- Nettoyage et désinfection des surfaces
 - *Acinetobacter baumannii* en SI
 - VRE
 - *Clostridium difficile*

Que faut-il surveiller dans l'environnement ?
... et pour quoi faire ?